

Common Core Mathematics
Vertical Alignment by Cluster for Grades PK-5

	PreK	K	1	2	3	4	5
Number & Operations - Fractions							
<i>Develop understanding of fractions as numbers</i>					<p>3.NF.1 Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by "a" parts of size $1/b$.</p> <p>3.NF.2a/2b Understand a fraction as a number on a number line (p 36)</p> <p>3.NF.3a/3b/3c/3d Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.</p>		

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Number & Operations - Fractions							
<i>Extend understanding of fraction equivalence & ordering</i>						4.NF.1 Explain why a fraction a/b is equivalent to a fraction $(nxa)/(nxb)$ by using visual fraction models with attention to how the number and size of the parts differ even though the 2 fractions themselves are the same. Use this principle to recognize & generate equivalent fractions.	
						4.NF.2 Compare 2 fractions with different numerators and different denominators eg by creating common denominators or numerators or by comparing to a benchmark fraction like $1/2$. Recognize that comparisons are valid only when the 2 fractions refer to the same whole. Record the results of comparisons with symbols $<$, $=$, $>$ & justify the conclusion eg by using a visual fraction model.	

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Number & Operations - Fractions							
<i>Build fractions from unit fractions y applying & extending previous understandings of operations on whole numbers.</i>						4.NF.3a/3b/3c/3d Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$ (see p 41)	
						4.NF.4a/4b/4c Apply & extend previous understandings of multiplication to multiply a fraction by a whole number (p 41)	
<i>Understand decimal notation for fractions & compare decimal fractions</i>						4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100 & use this technique to add 2 fractions with respective denominators 10 and 100.	
						4.NF.6 Use decimal notation for fractions with denominators 10 or 100 (p 41).	
						4.NF.7 Compare 2 decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the 2 decimals refer to the same whole. Record the results of comparisons with the symbols $<$, $=$, $>$ & justify the conclusions eg by using a visual model.	

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<i>Use equivalent fractions as a strategy to add & subtract fractions.</i>							5.NF.1 Add & subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.
							5.NF.2 Solve word problems involving addition & subtraction of fractions referring to the same whole, including cases of unlike denominators eg by using visual fraction models or equations to represent the problem. Use benchmark fractions & number sense of fractions to estimate mentally & assess the reasonableness of answers.

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Number & Operations - Fractions							
<i>Apply & extend previous understandings of multiplication & division to multiply & divide fractions.</i>							5.NF.3 Interpret a fraction as division of the numerator by denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions of mixed numbers eg by using visual fraction models or equations to represent the problem.
							5.NF.4a/4b Apply & extend previous understandings of multiplication to multiply a fraction or whole number by a fraction (p 46).
							5.NF.5a/5b Interpret multiplication as scaling (resizing). (P 46)
							5.NF.6 Solve real-world problems involving multiplication of fractions & mixed numbers (eg by using visual fraction models or equations to represent the problem)
							5.NF.7a/7b/7c Apply & extend previous understandings of division to divide unit fractions by whole numbers & whole numbers by unit fractions (p 46)